

Amendments to the Claims

The following listing of claims will replace all prior versions and listing of claims in the application.

1. (Currently Amended) A method of processing a food product, the method comprising the steps of:

providing a source of pulsed ultraviolet (UV) radiation within a wavelength range equal to about 150 nm to about 280 nm; and
directing the UV radiation at the food product so as to photo-ablate without substantially heating the food product.

2. (Previously Presented) The method of claim 1, further comprising selecting a combination of parameters associated with the radiation.

3. (Previously Presented) The method of claim 2, wherein the parameters include at least one of a group including radiation focus spot size, radiation pulse repetition rate and source power.

4. (Previously Presented) The method of claim 3, wherein said selecting step includes increasing the pulse rate so as to increase processing efficiency.

5. (Previously Presented) The method of claim 2, further comprising adjusting the parameters to alter a performance characteristic of the method.

6. (Previously Presented) The method of claim 5, wherein the performance characteristic is processing speed.

7. (Cancelled)

8. (Previously Presented) The method of claim 6, wherein the UV radiation has a wavelength equal to about 266 nm.

9. (Currently Amended) An apparatus for processing a food product, the apparatus comprising:

a laser emitting radiation having a wavelength in the ultraviolet range, within a wavelength range equal to about 150 nm to about 280 nm; and

wherein a combination of parameters associated with the radiation is selected so that said laser photo-ablates without substantially heating the food product.

10. (Previously Presented) The apparatus of claim 9, wherein the parameters include at least one of a group including radiation focus spot size, radiation pulse repetition rate and source power.

11. (Previously Presented) The apparatus of claim 10, wherein the combination is based on a characteristic of the food product.

12. (Previously Presented) The apparatus of claim 10, wherein the combination is based on a profile defined by ablation depth versus laser intensity.

13. (Previously Presented) The apparatus of claim 10, wherein the combination is adjusted according to a performance characteristic.

14. (Previously Presented) The apparatus of claim 13, wherein the performance characteristic is cutting depth.

15. (Cancelled)

16. (Currently Amended) The apparatus of claim [15] 1, wherein the UV radiation has a wavelength equal to about 266 nm.

17. (Currently Amended) An apparatus for processing a food product, the apparatus comprising:

a laser emitting radiation having a wavelength in [the] an ultraviolet range equal to about 150 nm to about 280 nm, wherein the radiation is directed towards the food product so as to photo-ablate the food product without substantially heating the food product.

18. (Previously Presented) The apparatus of claim 17, wherein the radiation is defined by a combination of parameters.

19. (Previously Presented) The apparatus of claim 18, wherein the combination includes focus spot size, radiation pulse repetition rate, and laser power.

20. (Previously Presented) The apparatus of claim 17, wherein the combination

corresponds to at least one of a group including a processing performance characteristic and a characteristic of the food product.

21. (Previously Presented) The apparatus of claim 17, wherein the wavelength is about 200 nm.

22. (Currently Amended) A method of processing a food product, the method comprising the steps of:

providing a laser that generates ultraviolet (UV) radiation, wherein the UV radiation has a wavelength in a range equal to about 150 nm to about 280 nm;

selecting operation parameters associated with the laser, wherein the parameters include radiation focus spot size, radiation pulse repetition rate and source power; and

directing the UV radiation towards the food product at a repetition rate equal to at least about 20 Hz so as to photo-ablate the food product.

23. (New) The method of claim 1, wherein the source of pulsed UV radiation is operated at a pulse duration of about 10 nanoseconds at a repetition rate of at least about 20 Hz.

24. (New) The method of claim 23, wherein the source of pulsed UV radiation is operated at a pulse duration of about 10-nanoseconds at a repetition rate of at least about 1 kHz.

25. (New) The apparatus of claim 9, wherein an average power of radiation is in a range equal to about 3.5W to about 40W while photo-ablating the food product.

26. (New) The apparatus of claim 17, wherein the radiation has a wavelength equal to about 266 nm and an average power during operation equal to at least about 3.5W.

27. (New) The method of claim 22, wherein the laser is operated at a pulse repetition rate of at least about 1 MHz and the food processing does not substantially heat the food product.